

Attorney Docket No.: ABLE-0021  
Inventors: Secombes et al.  
Serial No.: 10/088,780  
Filing Date: July 22, 2002  
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This listing of the claims will replace all prior versions and listings of claims in the application:

**Listing of the claims:**

Claims 1-54 (canceled)

Claim 55 (currently amended): A method for passive immunisation of a fish against a disease-causing virus in fish, said method comprising administering to an animal the fish a non-infectious eukaryotic expression plasmid construct comprising a DNA sequence encoding a secreted recombinant single chain antibody molecule, said antibody molecule comprising variable domains of immunoglobulin heavy and light chain polypeptides linked together by a linker peptide sequence and comprising a secretion signal peptide at the N-end of said antibody molecule, wherein the amino acid sequence of said variable domains of immunoglobulin heavy and light chains of said antibody molecule are derived from the variable domains of immunoglobulin heavy and light chains of an antibody raised against the disease-causing virus so that, the method wherein said recombinant antibody molecule is expressed in and secreted from transfected cells of the fish in vivo upon administration of said construct in the form of purified plasmid DNA to the fish.

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Claim 56-57 (cancelled)

Claim 58 (previously amended): The method of claim 55  
wherein the fish has a deficient immune system.

Claim 59 (cancelled)

Claim 60 (previously amended) The method of claim 55  
wherein the DNA sequence encodes antibody molecules to  
several different epitopes of the disease-causing virus.

Claim 61: (previously amended) The method of claim 55  
wherein the DNA sequence encodes a gene-expression library  
of antibodies to the disease-causing virus.

Claim 62: (previously presented) The method of claim 55  
wherein the encoded recombinant antibody is a virus-  
neutralising antibody.

Claim 63: (currently amended) The method of claim 55  
wherein the non-infectious eukaryotic expression plasmid  
construct encodes a viral haemorrhagic septicaemia virus  
VHSV-neutralising antibody derived from monoclonal antibody

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3F1H10 with, which variable domain of the heavy chain gene comprises two amino acid substitutions Asn 35 to Thr and Lys 64 to Thr in the H-chain gene and comprises— and further encodes a secretion signal of rainbow trout transforming growth factor (TGF-beta) operably linked to the 5' end of the heavy chain gene.

Claim 64 (cancelled)

Claim 65 (currently amended): The method of claim 55 wherein the non-infectious eukaryotic expression plasmid construct is administered by injection,—spray—or—gene—gun.

Claim 66 (previously amended): The method of claim 55 wherein a plurality of non-infectious plasmid constructs encoding antibodies to a spectrum of disease-causing viruses is administered to the fish.

Claim 67 (cancelled)

Claim 68 (currently amended): A non-infectious eukaryotic expression plasmid construct comprising a DNA sequence encoding a recombinant an antibody raised against a disease-causing virus, said recombinant antibody molecule

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being expressed and secreted in cells of fish upon in vivo administration of said non-infectious eukaryotic expression plasmid construct to fish viral haemorrhagic septicaemia virus VHSV-neutralising single chain antibody molecule comprising variable domains of immunoglobulin heavy and light chains derived from the variable domains of the immunoglobulin heavy and light chain of monoclonal antibody 3F1H10 which are operably linked together by a linker and with the secretion signal of rainbow trout transforming growth factor (TGF-beta) operably linked to the N-terminal of the heavy chain.

Claim 69 (cancelled)

Claim 70: (previously added) The non-infectious eukaryotic expression plasmid construct of claim 68 wherein the DNA sequence encodes antibody molecules to several different epitopes of the disease-causing virus.

Claim 71: (previously added) The non-infectious eukaryotic expression plasmid construct of claim 68 wherein the DNA sequence encodes a gene-expression library of antibodies to the disease-causing virus.

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Claim 72: (previously added) The non-infectious eukaryotic expression plasmid construct of claim 68 wherein the encoded recombinant antibody is a virus-neutralising antibody.

Claim 73: (currently amended) The non-infectious eukaryotic expression plasmid construct of claim 68 wherein the ~~non-infectious eukaryotic expression plasmid encodes a viral haemorrhagic septicaemia virus DNA sequence encoding the variable domain of the immunoglobulin heavy chain of the viral VHSV-neutralising single chain antibody derived from monoclonal antibody 3F14H10 with two amino acid substitutions is modified to include nucleotide substitutions corresponding to substitutions of amino acids Asn 35 to Thr and Lys 64 to Thr in the H-chain gene and comprises a secretion signal of rainbow trout transforming growth factor-<math>\beta</math> in the immunoglobulin heavy chain of the expressed antibody molecule.~~

Claim 74 (new): The non-infectious eukaryotic plasmid construct of claim 55 wherein the disease causing virus is selected from viral haemorrhagic septicaemia virus, infectious haematopoietic virus, infectious salmon anemia virus or nodavirus.

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Claim 75 (new): The non-infectious eukaryotic expression plasmid construct of claim 68 wherein the disease causing virus is selected from viral haemorrhagic septicaemia virus, infectious haematopoietic virus, infectious salmon anemia virus or nodavirus.